

**REMARKS**

**I. STATUS OF THE CLAIMS**

Various of the claims are amended herein.

New claims 24-29 are added. Support for the new claims 24, 25 and 27 is found, for example, on page 15, lines 1-3, of the specification. Support for new claims 26, 28 and 29 is found, for example, in FIGS. 1-4, and on page 9, line 25, through page 16, line 1, of the specification.

In view of the above, it is respectfully submitted that claims 1-29 are currently pending.

**II. REJECTION OF CLAIMS 1-5, 12-16, 20, 22 AND 23 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER AKASAKA ET. AL (US 6,501,593)**

It should be noted that the statement of the rejection refers to Akasaka et. al, US 6,501,593. However, this reference was not listed in an IDS or a Form PTO-892. (Please note that a different Akasaka et. al, US 6,292,288, was listed by the Examiner on a Form PTO-892). Therefore, an IDS was filed concurrently herewith, and lists Akasaka et al., US 6,501,593.

In an embodiment of the present invention as recited, for example, in claim 1, a first pump light source is located in one of a transmitting station, a receiving station, and a repeater station. The first pump light source supplies pump light at a first wavelength to an optical transmission line. As recited, for example, in claim 1, a second pump light source is located in a different one of the transmitting station, the receiving station and the repeater station. The second pump light source supplies pump light at second wavelength, different from the first wavelength, to the optical transmission line.

As recited, for example, in claim 1, the pump light at the first wavelength and the pump light at the second wavelength cause Raman amplification to occur in different spans of the optical transmission line, and thereby cause an optical signal to be amplified by a combined Raman amplification as the optical signal travels through the different spans. Moreover, as recited, for example, in claim 1, the first and second wavelengths are selected to reduce gain tilt of the combined Raman amplification.

Therefore, generally, embodiments of the present invention as recited, for example, in claim 1, relate to the distribution of pump light.

See, for example, FIGS. 1-4, and on page 9, line 25, through page 16, line 1, of the specification.

Akasaka discloses a plurality of pump lights at different wavelengths for Raman amplification. For example, FIG. 3 of Akasaka discloses pumping means 1 comprising a

plurality of pump light sources 3 providing pump light at different wavelengths for Raman amplification.

However, Akasaka simply shows a plurality of pump light sources grouped together at either the input or the output of a Raman amplification medium. Raman does not disclose the positioning of the pump light sources in a transmitting station, a receiving station and/or a repeater station, as in the present invention. Moreover, it is respectfully submitted that Akasaka does not disclose or suggest any reason for distributing pump light in the manner recited, for example, in claim 1 of the present application.

Although the above arguments are specifically directed to claim 1, it is respectfully submitted that the arguments would be helpful in understanding various differences of various other claims over the Akasaka.

\* \* \*

Please note that new claims 24, 25 and 27 are added, and recite a controller centrally controlling settings of the first and second wavelengths through communication lines to the first and second pump light sources, to reduce the gain tilt. See, for example, page 15, lines 1-3, of the specification. Clearly, such central control, along with the distributed pump light of, for example, claim 1, provides significant advantages. Akasaka does not disclose or suggest such central control.

\* \* \*

Independent claim 20 recites giving a warning about anomaly occurring at a supplying destination of pump light when a comparison result between detection results is within a predetermined range.

It is respectfully submitted that Akasaka does not disclose or suggest this feature.

\* \* \*

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 6-11, 17-19 AND 21 UNDER 35 USC 103  
AS BEING UNPATENTABLE OVER AKASAKA IN VIEW OF WU (US 6,423,963)

The comments in Section II, above, for distinguishing over Akasaka, also apply here, where appropriate.

Wu discloses that pump light is shut off in response to a change in a supervisory signal transmitted from a supervisory source, to shut off the pump light in the event of a fiber cut. See,

for example, FIG. 1, and the disclosure in column 4, line 28, through column 5, line 36, of Wu.

It is respectfully submitted that no portion of Wu discloses or suggests the stopping of pump light when a detector in an opposing station detects optical power of residual pump light as recited, for example, in claims 6 and 17, as amended herein.

Moreover, it is respectfully submitted that no portion of Wu discloses or suggests stopping the supply of pump light when a detection result from a reflected light detector is equal to or higher than a predetermined value as recited, for example, in claims 8 or 19, as amended herein.

In view of the above, it is respectfully submitted that the rejection is overcome.

#### IV. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

If any further fees are required in connection with the filing of this response, please charge such fees to our Deposit Account No. 19-3935.

Respectfully submitted,

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